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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,717

10/24/2005

Richard Quentin Carmichael

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IP DEPARTMENT  
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EXAMINER

SCHNEIDER, CRAIG M

ART UNIT

PAPER NUMBER

3753

MAIL DATE

DELIVERY MODE

03/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/541,717

**Applicant(s)**CARMICHAEL, RICHARD  
QUENTIN**Examiner**

CRAIG M. SCHNEIDER

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21, 23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 20, 21, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 16-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 7/11/07.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 24 recites the limitation "the fluid" in line 11. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1, 3, 6-15, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Moore (2,020,563).

Moore discloses a condensate trap (10 and 11) comprising a vortex chamber (29). The trap further comprising an inlet (14) and a single outlet (16). The inlet being disposed to admit fluid into the chamber in a tangential direction with respect to the longitudinal axis of the chamber so as to promote a rotational flow of the fluid in the

chamber about the longitudinal axis, thereby to generate a low pressure region within the fluid . The outlet comprising an escape aperture situated at an axial end of the chamber so as to open into the low pressure region in operation of the condensate trap (page 2, col. 2, line 43 to page 3, col. 2, line 8).

Regarding claim 9, the cortex chamber is provided in a control element (27) supported by a body provided with inlet (14) and outlet (17) passages. The inlet passage communicating with the inlet to the chamber and the outlet passage communicating with the escape aperture.

Regarding claim 12, the port communicating with the inlet comprises a circular groove (area that 11 and 28 communicate) in the contact face, centered on the port communicating with the escape aperture.

Regarding claim 14, the control element is secured to the body by a cap (11).

Regarding claim 24, the functional recitation that “the condensate flashing to steam in the low pressure region of the chamber if the condensate is at a temperature higher than the saturation temperature at the pressure of the low pressure region” is simply an inherent thermodynamic property of steam at given conditions related to the steam’s pressure and temperature compared to its saturation temperature under low pressure conditions. The steam/condensate fluid in Moore would display the same behavior under the stated conditions in Claim 24.

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore as applied to claim 1 above, and further in view of Freimann (5,573,029).

Moore disclose all the features of the claimed invention except that the vortex chamber has a portion that is cylindrical. Freimann discloses the use of a cylindrical inlet chamber (2) followed by the frusto conical section (4) of the chamber (col.5, lines 14-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the cylindrical section at the inlet of the vortex chamber of Freimann onto the vortex chamber of Moore, to create a more uniform entry flow.

9. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore.

Moore fails to disclose the diameter of the escape aperture. The examiner takes Official Notice that the diameter of the escape aperture is a results-effective variable, i.e. a variable that achieves a recognized result. In the instant case, the diameter of the escape aperture is directly proportional to the amount of condensate that can pass through the device. Since the diameter of the escape aperture is recognized as a results-effective variable, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have chosen a escape aperture with a diameter not greater than 40 mm and more specifically not greater than 30 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05).

***Response to Arguments***

10. Applicant's arguments filed 1/7/08 have been fully considered but they are not persuasive. The applicant is arguing that the inlet of Moore fails "to admit fluid into the chamber in a tangential direction with respect to the longitudinal axis of the chamber". The examiner respectfully disagrees with the applicant. The inlet 14 provides fluid to the chamber which enters the chamber via tangentially directed flow paths 33. These flow paths can be seen in Figures 2, 4, and 5. Therefore the claim language is still anticipated by Moore. The applicant is also arguing that the chamber 29 is not a vortex chamber and further that 29 can not be a chamber. The examiner disagrees with this and points out that a chamber is simply an enclosed space and therefore 29 is a chamber. Chamber 29 is further a vortex chamber because as the fluid enters 29 through 33 a whirling or rotating motion which initiates the travel of the condensate around the spiral passage (page 3, col. 1, lines 20-33). Therefore the chamber 29 is a vortex chamber and anticipates the claim language. The applicant is also arguing that the vortex chamber does not rotate around the vicinity of the longitudinal axis. The examiner would like to point out that the term vicinity is not in the claims and further that the term "vicinity" is a relative term. The vortex chamber of Moore is clearly rotating around the longitudinal axis of the device.

11. The applicant is further arguing that the method claim 24 would not be anticipated by Moore. The applicant is arguing about the functional recitation that the condensate flashing to steam in the low pressure region of the chamber if the condensate is at a temperature higher than the saturation temperature at the pressure

of the low pressure region. This is simply an inherent thermodynamic property of steam at given conditions related to the steam's pressure and temperature compared to its saturation temperature under low pressure conditions. The steam/condensate fluid in Moore would display the same behavior under the stated conditions in Claim 24.

12. The applicant is also arguing that Moore fails to disclose that the escape aperture opening into the low pressure region has a diameter not greater than 30 or 40 millimeters as defined by claims 20 and 21. The examiner has acknowledged this fact in paragraph 9 of the non-final office action dated 8/15/07 and has further pointed out that the rejection is based on a results effective variable.

13. In response to applicant's argument that Freimann is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both Freimann and Moore utilize vortex chambers and therefore the art is analogous.

### ***Conclusion***

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:30 -5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Huson can be reached on (571) 272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. S./  
Examiner, Art Unit 3753  
March 19, 2008

/Ramesh Krishnamurthy/  
Primary Examiner, Art Unit 3753



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